

**METHODS AND APPARATUS FOR TRANSMITTING DATA  
IN A PACKET NETWORK**

5      **Abstract of the Disclosure**

Methods and apparatus are disclosed for transmitting data, such as biometric data or Internet telephone data, in a packet network. Packets are split and interchanged prior to transmission across a packet network, such that packets that reach their destination may be processed, even in the presence of lost or delayed packets.

10      Packets of biometric data, such as fingerprints, retinal scans or voice characteristics, are split, and optionally interchanged prior to transmission. If some packets are lost or delayed, while some of the packets reach their destination and provide sufficient data for user identification, then the user may be authenticated without requesting the retransmission of the lost or delayed data. Sampled voice packets are split, and optionally

15      interchanged prior to transmission. If some packets are lost or delayed, while some packets reach their destination, then the received speech samples may be reproduced without requesting the retransmission of the lost or delayed data. A packet splitter splits framed data into a number of packets. For example, the framed data is split into two packets with the first packet containing k frames having odd indexes and the second

20      packet having k frames having even indexes. If both packets arrive at a destination point, they can be integrated back into the framed data comprised of the continuous string of frames,  $f_1, f_2, f_3, \dots, f_N$ . Otherwise, if a packet was lost or significantly delayed, the data can be recovered from the single received packet using, for example, smoothing techniques, such as spline extrapolation, for the lost packets with even indexing.

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